

Table 3

EXAMP LE	polymer	monomer	exposure (mJ/cm)	diffraction efficiency (%)
2 7	polymer 3	ethylene glycol dimethacrylate	4 0 0	5 0
2 8	polymer 3	tetraethylene glycol dimethacrylate	2 5 0	9 2
2 9	polymer 3	nonaethylene glycol dimethacrylate	3 0 0	8 9
3 0	polymer 3	neopentyl glycol diacrylate	3 0 0	9 0
3 1	polymer 3	nonaethylene glycol diacrylate	1 7 5	8 3
3 2	polymer 3	trimethylolpropane trimethacrylate	4 0 0	5 6
3 3	polymer 3	trimethylolpropane triacrylate	1 0 0	9 1
3 4	polymer 3	tetramethylolmethane triacrylate	3 0 0	8 2
3 5	polymer 3	tetramethylolmethane tetraacrylate	4 0	8 1
3 6	polymer 3	dipentaerythritol hexaacrylate	2 5 0	7 4

polymer 3: diallylorthophthalate prepolymer (Daiso DAP, Type A)

EXAMPLE 37

(1) 2 g of diallylorthophthalate prepolymer ("Daiso DAP Type A" produced by Daiso Co., Ltd.), 3 g of neopentyl glycol diacrylate ("NK Ester A-NPG" produced by Shin-Nakamura Chemical Co., Ltd.), 1.75 g of 3,3'4,4'-tetra(tert-butyperoxycarbonyl)benzophenone ("BTTB-25" produced by NOF Corporation) as a polymerization initiator, 0.005 g of 3,3'-carbonylbis(7-(diethylamino)coumarin) ("BC" produced by Midori Kagaku Co., Ltd.) as a photosensitizing dye, and 4 g of acetone were mixed at an ordinary temperature to prepare a recording material composition comprising these components.

(2) The composition was coated on one surface of a glass plate substrate having a dimension of 60 x 60 x 1.3 mm in an appropriate amount, and acetone was removed from the coated layer under reduced pressure, to produce a recording material having a two-layer structure comprising the substrate and the recording layer.

(3) A PET film in a strip form having a size of 1 x 60 mm and a thickness of 20 μm was placed on the recording layer, and a protective material comprising a glass plate having the same size as the substrate was placed thereon, to produce a three-layer photosensitive plate having a sandwich form for recording a hologram.

(4) Interference was formed between object light and reference light by using an Ar laser (wavelength: 488 nm). The three-layer photosensitive plate for recording a hologram was placed at a position, at which a fringe pattern formed by the interference could be caught. The photosensitive plate was exposed to Ar laser light (20 mW/cm²) for a

prescribed period of time under the conditions, and an interference fringe to be a hologram could be recorded on the photosensitive plate.

The resulting hologram exhibited a diffraction efficiency of 89% at an exposed amount of 100 mJ/cm².

EXAMPLE 38

(1) 2.3 g of diallylorthophthalate prepolymer ("Daiso DAP Type A" produced by Daiso Co., Ltd.), 1.8 g of 9,9-bis(4-(2-acryloyloxyethoxy)phenyl) fluorene ("BPEFA" produced by Osaka Gas Co., Ltd.), 0.9 g of vinyl bisphenylcarboxylate (produced by Nippon Steel Chemical Co., Ltd.), 1.75 g of 3,3'4,4'-tetra(tert-butyperoxycarbonyl)benzophenone ("BTTB-25" produced by NOF Corporation), 0.005 g of 3,3'-carbonylbis(7-(diethylamino)coumarin) (BC produced by Midori Kagaku Co., Ltd.), and 4 g of tetrahydrofuran were mixed at an ordinary temperature to prepare a recording material composition comprising these components.

(2) The composition was coated on one surface of a glass plate substrate having a dimension of 60 x 60 x 1.3 mm in an appropriate amount, and tetrahydrofuran was removed from the coated layer under reduced pressure, to produce a recording material having a two-layer structure comprising the substrate and the recording layer.

(3) A PET film in a strip form having a size of 1 x 60 mm and a thickness of 20 μ m was placed on the recording layer, and a protective material comprising a glass plate having the same size as the substrate was placed thereon, to produce a three-layer photosensitive plate having a sandwich form for recording a hologram.